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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/073,494

05/06/1998

PAI-HUNG PAN

2915.1US(96-

9834

7590

10/24/2002

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EXAMINER

VU, HUNG K

ART UNIT

PAPER NUMBER

2811

DATE MAILED: 10/24/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/073,494

Applicant(s)

PAN ET AL.

Examiner

Hung K. Vu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 02 April 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 23-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 23-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 25. 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. Applicants' communication filed 02/04/02 has been carefully considered by the examiner. The arguments advanced therein are persuasive with respect to the rejections of record, and those rejections are accordingly withdrawn. In view of a further search, however, a new rejection is set forth further below. This action is not made final.

#### *Claim Objections*

2. Claim 30 is objected to because of the following informalities: In claim 30, line 5, "a non-crystalline" should be changed to "said non-crystalline" for clarity. Appropriate correction is required.

#### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C.

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122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 23-33 are rejected under 35 U.S.C. 102(e) as being anticipated by Chen et al. (PN 5,472,896). Note Col. 4, lines 23-50 and Figures 1e and 3f of Chen et al..

With regard to claim 23, Chen et al. discloses an operable gate stack, including a non-crystalline metallic silicide film (16).

With regard to claim 24, Chen et al. discloses an operable gate stack, including an amorphous metallic silicide film (16) wherein the metallic silicide film is substantially devoid of silicon clusters. Note that because the metallic silicide film is in amorphous state, it is inherent that it is substantially devoid of silicon clusters.

With regard to claim 25, Chen et al. discloses an operable gate stack on a silicon substrate (10) having a dielectric layer (12) thereover comprising,

- a polysilicon layer (14) disposed over the dielectric layer;

- a non-crystalline metallic silicide film (16) disposed over the polysilicon layer;

- a dielectric cap (22) on the non-crystalline metallic silicide film.

With regard to claim 26, Chen et al. discloses a gate stack structure comprising an operable gate stack on a dielectric layer (12), over a silicon substrate (10), wherein the dielectric layer is substantially devoid of pitting. Note that because a metallic silicide film (16) is in amorphous state, it is inherent that the dielectric layer is substantially devoid of pitting.

With regard to claim 27, Chen et al. discloses the operable gate stack includes a non-crystalline metallic silicide film (16).

With regard to claim 28, Chen et al. discloses the operable gate stack includes an amorphous metallic silicide film (16) substantially devoid of silicon clusters. Note that because the metallic silicide film is in amorphous state, it is inherent that it is substantially devoid of silicon clusters.

With regard to claim 29, Chen et al. discloses a semiconductor device comprising at least one gate stack having a non-crystalline metallic silicide film (16).

With regard to claim 30, Chen et al. discloses the at least one gate stack comprising,

- a silicon substrate (10) having a dielectric layer (12) thereover;
- a polysilicon layer (14) disposed over the dielectric layer;
- the non-crystalline metallic silicide film (16) disposed over the polysilicon layer;
- a dielectric cap (22) on the non-crystalline metallic silicide film.

With regard to claim 31, Chen et al. discloses a semiconductor device comprising at least one gate stack structure on a dielectric layer (12), over a silicon substrate (10), wherein the dielectric layer is substantially devoid of pitting. Note that because a metallic silicide film (16) is in amorphous state, it is inherent that the dielectric layer is substantially devoid of pitting.

With regard to claim 32, Chen et al. discloses the at least one gate stack structure includes a non-crystalline metallic silicide film (16).

With regard to claim 33, Chen et al. discloses the at least one gate stack structure includes an amorphous silicide film (16) substantially devoid of silicon clusters. Note that because the metallic silicide film is in amorphous state, it is inherent that it is substantially devoid of silicon clusters.

#### *Response to Arguments*

4. Applicant's arguments with respect to claims 23-33 have been considered but are moot in view of the new ground(s) of rejection.

#### *Conclusion*

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung K. Vu whose telephone number is (703) 308-4079. The examiner can normally be reached on Mon-Thurs 7:00-5:30, Eastern Time.

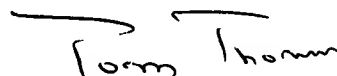
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (703) 308-2772. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Vu

October 18, 2002

A handwritten signature in black ink that reads "Tom Thomas". The signature is written in a cursive style with a horizontal line above the first name.

**TOM THOMAS**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2800**